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EXAMINER	
HOBAN, MATTHEW E	

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1793	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/569,955	AVEDIKIAN ET AL.	
	Examiner	Art Unit	
	Matthew E. Hoban	1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *1/16/2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *16-37* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *16-37* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *1/16/2008*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

2. Claims 16-25, 29-32 34, and 36-37 rejected under 35 U.S.C. 102(b) as being anticipated by Raine in 3,353,976.

Raine et al teach the composition of a synthetic bauxite green body, which is later made into a refractory brick. The composition of the green body, after synthesis, was found to be 89.1% Al_2O_3, 6.2% SiO_2, 3.2% TiO_2 and 1.5 % FeO_3 by weight. The instant claims 16 and 37 state that Fe2O3 is an impurity in the composition; however, based on the disclosure, this limitation does not eliminate Raine as prior art. This is due to the fact that the levels of impurities in the instant specification are as much as 2 wt% (based on the fact that it is stated that the balance of the examples is made up of impurities such as iron). Therefore, it is immaterial whether iron oxide is added individually or is incidental as an impurity. The amount of iron added intentionally by Raine is within the threshold of impurities as defined by the applicant. Furthermore, in either scenario, whether the iron is added intentionally or incidentally, it is present in the composition. Therefore the example of Raine, as seen in Example 1 reads on the aforementioned instant claims. This is because:

In relation to claim 16-17, 37:

The amounts of titania, alumina, zirconia (0%) and additive (TiO_2) in Raine's example fall within the ranges recited by the instant application. These additives are added along with the rest of the raw materials to provide a green part.

In relation to claim 18:

The amount of silica in Raine's invention is 6.2%, which is greater than 3%, as required by the instant claim

In relation to claim 19:

The amount of titania in Raine's invention is 3.2%, which is greater than 2%, as required by the instant claim.

In relation to claim 34:

Raine shows his composition is made into a brick at lines 25-40 of Column 3.

Claims 20-22 and 36 are directed to further limiting the additives in the composition and refer to a summation of the components of the additive (i.e., $\Sigma(Y_2O_3+V_2O_5+TiO_2+Sb_2O+Yb_2O_3)$). In the case of Raine all components in this sum are 0, aside from Titania.

In relation to claim 20:

The summation of the additives in Raine's invention is 3.2%, which is less than 5% as required by the instant claim.

In relation to claim 21-22:

The summation of the additives in Raine's invention is 3.2%, which is greater than 3% as required by the instant claims.

In relation to claim 36:

The summation of the additives is 3.2%, which is greater than 1% as required by the instant claim. These additives are added with the rest of the raw materials to provide a green part.

Claims 23-25 are directed to further limiting the additives in the composition and refer to the wt% of an individual oxide, which is included in the additive (i.e., Y_2O_3 or V_2O_5 or TiO_2 or Sb_2O or Yb_2O_3). In the case of Raine, the individual oxide included in the group of additives is titania.

In relation to claim 23-25:

The amount of one of the individual species of additives in Raine's invention (titania) is 3.2%, which is greater than 3% as required by the instant claims

In relation to claim 29-32:

Raines further speaks of the synthesis of the synthetic bauxite, which was produced. This process included the steps of mixing alumina hydrate, volatilized silica, titania, and iron oxide. The mixture was then compacted into pellets at a raised temperature and fired at 2900 degrees Fahrenheit (See Column 2, Lines 64-66). These pellets were then used to make refractory bricks (refractory products) (See Column 3, Lines 25-39). Raine states that the pellets are compacted at a pressure of 3000 p.s.i. and then burned (sintered) at cone 14-15 to make the refractory bricks. Raines later states that cone 15 represents a heating to 2595F (1425 C) at a heating rate of 108F

per hour (Column 4, Lines 65-70). The limitations in claim 32, dealing with the fact that the brick is “employed in a region of a glass making furnace for the manufacture of soda lime or extra white soda lime glass” cannot bring any further patentable weight to the claim as this clause is directed to an "intended use" or "process of using" the refractory bricks, where the instant claims are directed towards a process of making a refractory product.

3. Claims 16-19, 21-25, 29-32, and 34-37 are rejected under 35 U.S.C. 102(b) as being anticipated by Noguchi in 5346870.

Noguchi is directed towards an aluminum titanate ceramic, which has good casting properties and high heat cycle durability. Typical compositions of these materials can be seen in Tables 1-4. The raw materials were mixed and molded into a shaped body and subsequently sintered to form a shaped body (See Column 5, lines 19-56). Firing typically occurs at a temperature of either 1400 or 15000C (See Tables 1-4). All the compositions have similar compositions, being comprised of alumina, titania, silica, and the oxide of a rare earth oxide. Several rare earth oxides were tested including Y_2O_3 and Yb_2O_3. Of particular interest is Example 9, found in Table 3, which this 102 rejection is rooted in. Example 9 has the composition of 56.2 wt% Al_2O_3, 35.3 wt% TiO_2, 6 wt% SiO_2, .5 wt% MgO 2 wt% Yb_2O_3.

In relation to claim 16-17 and 37:

The amounts of titania, alumina, zirconia and additive (TiO_2+ Yb_2O_3) in Noguchi's example fall within the ranges recited by the instant application. These additives are added along with the rest of the raw materials to provide a green part.

In relation to claim 18:

The amount of silica in Noguchi is 6%, which is greater than 3%, as required by the instant claim

In relation to claim 19:

The amount of titania in Noguchi is 35.3%, which is greater than 2%, as required by the instant claim.

Claims 21-22 35, and 36 are directed to further limiting the additives in the composition and refer to a summation of the components of the additive (i.e., $\Sigma(Y_2O_3+V_2O_5+TiO_2+Sb_2O+Yb_2O_3)$). In the case of Noguchi all components in this sum are 0, aside from Titania and Yb_2O_3.

In relation to claim 21-22:

The summation of the additives in Noguchi's example is 37.3%, which is greater than 3% as required by the instant claims.

In relation to claim 35:

The summation of the additives including oxides of yttrium vanadium, antimony, and ytterbium in Noguchi's example is 2 wt% (ytterbium), which is greater than 1% as required by the instant claim

In relation to claim 36:

The summation of the additives in Noguchi's example is 37.3%, which is greater than 1% as required by the instant claim. These additives are added with the rest of the raw materials to provide a green part.

Claims 23-25 are directed to further limiting the additives in the composition and refer to the wt% of an individual oxide, which is included in the additive (i.e., Y_2O_3 or V_2O_5 or TiO_2 or Sb_2O or Yb_2O_3). In the case of Noguchi, the individual oxide included in the group of additives is titania.

In relation to claim 23-25:

The amount of one of the individual species of additives in Noguchi's example (titania) is 35.3%, which is greater than 3% as required by the instant claims

In relation to claim 29-32 and 34:

Noguchi further speaks of the synthesis of the synthetic bauxite, which was produced. This process included the steps of mixing the raw materials into a preformed shape followed by a sintering step. The fact that claim 32 and 34 requires the green

part to be in the shape of a brick is anticipated by the fact that Noguchi's disclosure teaches the shaped mold. This sintering step was performed at 1500C, as can be seen in Table 3. The limitations in claim 32, dealing with the fact that the brick is "employed in a region of a glass making furnace for the manufacture of soda lime or extra white soda lime glass" cannot bring any further patentable weight to the claim as this clause is directed to an "intended use" or "process of using" the refractory bricks, where the instant claims are directed towards a process of making a refractory product.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein

were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 26-28 and 33 rejected under 35 U.S.C. 103(a) as being unpatentable over Noguchi in 5346870 applied to claim16 above.

The instant claims are directed to a green part having a specific mineral composition, which includes certain amounts of yttria.

Noguchi is directed towards an aluminum titanate ceramic, which has good casting properties and high heat cycle durability. Typical compositions of these materials can be seen in Tables 1-4. The raw materials were mixed and molded into a shaped body and subsequently sintered to form a shaped body (See Column 5, lines 19-56). Firing typically occurs at a temperature of either 1400 or 15000C (See Tables 1-4). All the compositions have similar compositions, being comprised of alumina, titania, silica, and the oxide of a rare earth oxide. Several rare earth oxides were tested including both yttria and ytterbium.

Noguchi fails to directly teach a composition including greater than 1, 2 or 3 wt% yttria.

However, Noguchi does teach that rare earth oxides, such as yttria can be included in his composition in an amount up to 10 wt% (See Column 3, Lines 47-59). Therefore, it would have been obvious for one of ordinary skill in the art to use yttria in their compositions at a greater amount than .5 wt% as used in Noguchi's example 2. Furthermore, Noguchi shows other examples of his compositions where other rare earth oxides are used in 2-10 wt%, such as in Examples 9, 10 and 14. In these examples the rare earth oxides of ytterbium and erbium are used and good results were obtained and reported. It would have been obvious to one of ordinary skill in the art to use yttrium in these same amounts, as the purpose of adding these oxides is to form rare earth titanates, which create better heat cycle durability (See Column 2 Lines 35-60). For this reason, it would have been obvious to use Y in place of Yb for example in composition 10, where Yb was used in amount of 10 wt% and create a green part with the composition of 52 wt% alumina, 32.5 wt% titania, 5 wt% silica, .5 wt% magnesia, and 10 wt% yttria. This composition is within the scope of Noguchi's teachings and would read on all of the instant claims.

Response to Arguments

7. Applicant's arguments, see pages 13-16, filed 1/16/2008, with respect to the rejection of claims 26-28 based on Rosenflanz in view of Raine have been fully considered and are persuasive. The rejection of these claims has been withdrawn. However, upon further consideration and in view of the newly added claims, a new grounds of rejection is made in view of Noguchi as seen previously in this action.

8. Applicant's arguments, see pages 10 and 11, filed 1/16/2008, with respect to the rejection of claims 16-25 and 28 over Raine et al have been fully considered but they are not persuasive. The definition of iron as an impurity is not sufficient to overcome the teachings of Raine is not sufficient. The instant specification states that the balance of the compositions seen in the specific examples pertains to CaO and other impurities such as iron oxide. In these examples the total amount of these impurities can be as much as 2.5%, meaning that based on the specific embodiments of the applicant, the composition could contain up to 2.5% iron oxide. Regardless of whether the iron oxide is added incidentally (as in the case of the applicant's composition) or intentionally (as in the case of Raine's composition), it is in the composition.

9. All other arguments with respect to claims 16-28 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew E. Hoban whose telephone number is (571) 270-3585. The examiner can normally be reached on Monday - Friday from 7:30 AM to 5 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jerry Lorengo can be reached on (571) 272-1233. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jerry A Lorengo/
Supervisory Patent Examiner, Art Unit 1793

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